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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,796	07/30/2003	Jae-Hwan Park	05823.0249	9431

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EXAMINER

VANOY, TIMOTHY C

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,796

Applicant(s)

PARK ET AL.

Examiner

Timothy C. Vanoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 12-16 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5, 7 and 9 is/are allowed.
- 6) ☒ Claim(s) 2, 4, 6, 8, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 1, 3 and 4 is/are objected to.
- 8) ☒ Claim(s) 1-16 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/30/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-11 in the reply filed on Feb. 13, 2006 is acknowledged.

Claims 12-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected apparatus, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on Feb. 13, 2006.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

- a) Claim 1 is objected to because the claim does not expressly set forth that the gas mixture contains both oxygen and argon. It is suggested to substitute --comprising 1 – 20 vol. % oxygen and the balance being argon gas-- in lieu of “where oxygen content is 1-20 vol % with reference to that of argon gas” to improve the claim language.
- b) In claim 3, the phrase “. . . substrate is coated with gold to be 10-30 angstrom (Å) thick. . .” doesn't appear to be the applicants' intention. Since it appears that the gold layer is 10-30 angstroms thick, then it is suggested to replace this phrase with --. . . substrate is coated with gold to provide a gold layer that is 10-30 angstrom (Å) thick. . .--

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c) In claim 4, the phrase "and oxygen content in the gas mixture is 1-20 vol % with reference to that of argon gas" is objected to because it does not further limit claim 1.

Claim 1 already contains this limitation.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 4, 6, 8, 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claims 2, 4, 6, 8, 10 and 11 are unduly vague and indefinite because they all recite the introduction of an "argon gas" into the reaction tube, while there is nothing in claim 1 requiring that any "argon gas" be used in the synthesis of the nanostructures. Since claim 1 sets forth that a "gas mixture" is used to synthesize the nanostructures, then it is suggested to amend claims 2, 4, 6, 8, 10 and 11 by substituting --gas mixture-- in lieu of "argon gas". The paragraph bridging pages 5 and 6 in the applicants' specification emphasizes that the applicants' use of a gas mixture containing oxygen and argon provides for great advantages over the prior art.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

None of the claims have been rejected under either 35USC102 or 35USC103 because the applicants' independent claim 1 (and the claims dependent thereon) require the use of a gas mixture containing oxygen and argon to make the nanostructures, whereas the process described in the article titled "Catalytic Growth of Zinc Oxide Nanowires by Vapor Transport" by Michael Huang et al. on pg. 113, col. 2, 2nd full paragraph uses what appears to be pure argon gas to make their nanostructures.

The following references, which are indicative of the state of the art, are made of record:

U. S. Pat. App'n. Pub. No. US 2005/0249660 A1 disclosing a nanostructured zinc oxide photocatalyst;

U. S. Pat. App'n. Pub. No. US 2005/0214190 A1 disclosing a method for synthesizing nanorods, and

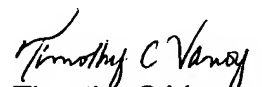
U. S. Patent 6,710,091 B1 disclosing nanoparticulate zinc oxide gels;

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Timothy C Vanoy
Patent Examiner
Art Unit 1754

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